REMARKS

The Office Action of March 28, 2008 has been carefully considered.

The specification has been amended to add subject matter headings and to correct an error taken from the translation of the original German language application.

Claims 9-13 have been rejected under 35 USC 102(b) as anticipated by Delperier et al, and claim 14 has been rejected under 35 USC 103(a) over Delperier et al in view of Valentian and Carroll et al.

The claims of record have been canceled, and replaced by a new set of claims 15-22, with claims 15-20 corresponding to original claims 9-14, claim 21 reciting subject matter disclosed at page 3, lines 4-10 of the specification and claim 22 reciting subject matter shown in Fig. 1.

According to new claim 15, the invention relates to a method for producing a substrate designed to support an object for processing, the substrate comprising carbon and having gas outlets or passage openings formed therein, interspersed through the substrate. According to this method, a framework is produced, made of at least one of carbon fibers and SiC fibers, and the framework is stabilized with at least one pyrocarbon and/or silicon carbide coating that forms a matrix, such that the stabilized framework has a porosity level that forms the gas outlet or passage openings. It is this stabilized framework or a segment thereof which is used as the substrate.

In other words, a carrier is produced that comprises gas outlet or passage openings. The carrier – also referred to as susceptor – is meant for treating objects such as semiconductor wafers. For example, the back surface of an object can be protected during an epitaxial process prior to deposition, as long as a cleaning or purifying gas is

conducted through the susceptor. Furthermore, the cleaning gas ensures that dopant atoms that escape from the back surface of the object during the epitaxial process are carried away with the gas flow, so that autodoping of the front surface of the object is substantially reduced.

Thus, the substrate of the invention is especially important when the front and back surfaces of an object are to be processed differently. In this case, the use of the substrate of the invention allows an oxide layer that is present on all sides of an object to be etched in such a way that the oxide is removed in a targeted manner only from the front surface. An unintended introduction of etching gas between the substrate and the object, which can lead to a partial etching of the oxide layer in the boundary area of the back surface of the object, is prevented, and as a consequence, the oxide layer on the back surface is protected.

In order to achieve these advantage, gas-passing openings are deliberately formed in the carrier. In order to provide a carrier with finely divided gas outlet or passage openings without treating the carrier mechanically, claim 15 recites producing of a framework made of carbon and/or SiC fibers, and stabilizing the framework with at least one pyrocarbon and/or silicon carbide coating that forms a matrix, such that the stabilized framework has a porosity level that forms the gas outlet or passage openings.

Based on the teaching of the invention, it is possible to produce a very strong susceptor in which pore channels are statistically distributed or randomly arranged and isotropicly distributed throughout the fiber structure of the framework, such that gas, that is to be applied to an object to be processed and positioned onto the support substrate, flows through the pore channels. The flow through the randomly extending pore channels causes the retention time of the gas

inside the substrate to increase, producing very even heating of the gas. Furthermore, due to the plurality of pore channels, a gas flow with a very high level of homogeneity can be achieved.

The art cited in the Office Action contains no suggestion of a method producing such a susceptor.

Delperier et al does not disclose producing a planar susceptor support for a substrate that is gas treated flowing through the susceptor. Rather, Delperier et al deals with densifying a hollow porous substrate by chemical vapor infiltration (CVI). The hollow porous substrate which is produced is disclosed as being a crucible or crucible-support bowl, and in particular, the crucible is used for drawing silicon single crystals by means of the Czochralski process (see paragraph [0040]).

Thus, the bowls produced by the process of Delperier et al are to receive liquid silicon and are not meant to be interspersed with gas for treating an object. Since the bowls produced must be suitable for receiving liquid silicon for drawing single crystals, the material of which the bowls are formed needs to be densified to such an extent that the fluids cannot leak out. Hence, the bowls of Delperier et al have a function totally different from that of the susceptors according to the invention, and must correspondingly have a different structure suitable for the disclosed purpose.

That the densified bowls of Delperier et al are not porous can also be seen very clearly from the drawings, especially Figs. 1, 3, 5, 7 and 11. It can be seen from these figures that the substrate in form of bowls does not have gas outlets or openings through which gas can flows. Rather, the gas circulates around the bowls.

The bowls produced by Delperier et al are therefore dense substrates without any passage openings, and which are

suitable for receiving liquid silicon.

Valentian, like Delperier et al, relates to a crucible for use in a device for making single crystals. Consequently, Valentian also does not disclose a planar susceptor having passage openings formed by pores through which gas can flow in order to treat an object arranged on the susceptor; the crucible disclosed by Valentian must be solid to retain a liquid.

However, Valentian also does not disclose the structure recited in claim 14, with stabilized fibers having a graduated system of coatings that transition from carbon to silicon carbide. In column 6, lines 46-66, Valentian discloses that the fibers used for the production of the crucible are impregnated either with carbon (column 6, line 47) or with silicon carbide (column 6, lines 57-58). This is an either/or disclosure; the reference does not suggest a structure in which there is a graduation of carbon and silicon carbide.

Carroll et al relates to a method of densifying porous preform having a porous interior region of graded carbon-silicon carbide. There is no disclosure or suggestion of a porous susceptor for treating objects. It is not relevant that this document suggests a graded layer structure of carbon and silicon carbide, since the layer structure disclosed is not used for a susceptor produced in accordance with the invention.

Withdrawal of these rejections is requested.

In view of the foregoing amendments and remarks, Applicant submits that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

Respectfully submitted,

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